

CONFIDENTIAL

AGENDA

EQUIPMENT BOARD

File

Meeting No. 3-65

DATE : 05 April 1965
TIME : 1400
PLACE : OC Conference Room
2D03 Hqs. Building

OLD BUSINESS

None

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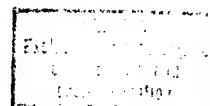
NEW BUSINESS

Agenda Item No. 1: MAX-1 Equipment Installations

Background: The purpose of this meeting will be to discuss the scope and timing of the actions which are now required following the activation of MAX-1. In this connection, OC-T and OC-E will be prepared to discuss the status of the present MAX-1 installation, operator and maintenance training, programming changes required, etc. OC-T will also be prepared to discuss future switch requirements, both automatic and semi-automatic. One specific objective of this meeting will be to determine where the next switch is to be placed, when to budget for it and when to plan on installing it.

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2 April 1965

MEMORANDUM FOR: Equipment Board Members

FROM : Chief, Telecommunications Staff, OC

SUBJECT : Background Information for Equipment Board Meeting Concerning the CIA Automated Switching Plans

1. Now that our first fully automatic stored program message switch is in operation we can answer a number of questions concerning its applicability to CIA's communications system. When the Office of Communications decided to go forward with MAX-1 on 5 December 1962 there were several problem areas for which we had no satisfactory answer.

a. Would a fully automatic switch operate in a high frequency radio circuit environment? The answer to this question is a very definite yes. MAX-1 has now been operating for a month. During this period the amount of material which the automatic switch will not process is estimated to be less than 5% of the total traffic handled. All of the remaining spill-out is attributable to human or machine introduced errors into the traffic.

b. Is there a requirement for a fully dual system? At the time the original MAX-1 was approved we all questioned the necessity for buying two complete switches for each location. We now find no satisfactory alternative to keeping this dual capability on-site. The unsatisfactory alternative is frequent and non-predictable periods of outage which are not unacceptable to our communications network as a whole.

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2. The improvements which we have made [REDACTED] since the activation of MAX-1 include the following:

a. Paper tape is virtually eliminated at the relay station.

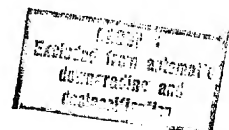
b. Traffic at the relay station is handled faster and more efficiently.

c. The relay center is able to process peak traffic volumes without corresponding increases in man-hours or degradation of service.

d. Future increases in circuit requirements can be accommodated without a corresponding increase in man-hour consumption.

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e. There is a much faster recovery of the relay center operation after periods of circuit outages. Our backlog problems now are considerably less than they were when we were handling tapes.

3. In the future we anticipate a number of improvements to the overall efficiency and a more effectively controlled area network. This will come about after the switch has been in operation for a longer period of time and a number of changes in location of equipments and a few software corrections have been made.

4. There are a number of changes which are now required in MAX-1:

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a. [REDACTED] is now in the process of cleaning up their part of the network and expect to deliver to us a final assembly which will be debugged [REDACTED] in April 1965. At that time they will have substantially met all of the specifications which we included in the original contract for MAX-1.

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b. As a result of the experience which we have now gained after the activation of MAX-1, there are several improvements which we wish to incorporate in the switch as soon as possible. These include a different program to solve a transmission identification problem which because of its nature is now causing [REDACTED] to monitor all incoming messages. There are also a number of procedural changes which will directly effect the operator efficiency at the MAX-1 site.

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c. The military are currently coordinating an Allied Communications Publication 127(C) change which we anticipate will become effective this summer. This will require a modification of the MAX-1 program. It involves the replacement of the current 30-day month file time group, to a 365-day year file time group. Also, the addition of the classification symbols repeated in the heading of the message.

d. We are also currently involved in discussions with DCA and NSA concerning the future DIA/NSA switching network. We anticipate that these discussions will result in the elimination of the unique NSA procedure which has been incorporated in our switch. Specifically, we expect that the unique [REDACTED] routing indicators used by NSA will be eliminated. We expect changes in the recognition procedures now used by NSA. All of these will add up to reprogramming problems for MAX-1.

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5. During the period 1965 through 1970 we foresee a requirement for a total of six (6) automatic switches similar to MAX-1, plus a separately automated cable secretariat distribution system. The proposed locations for these switches are Langley, [REDACTED]. The remaining relay requirements would be met by semi-automatic or manual tape relay centers located within the radio base stations programmed by the Office of Communications plus [REDACTED]. This requirements forecast will be discussed in some detail at the Equipment Board Meeting. (See Attachment 1-3).

[REDACTED]

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Distribution:

1 - OC-O
1 - OC-E
1 - OC-S
1 - OC-P
1 - OC-OS
1 - OC-S/C
1 - OC-EXO
1 - DD/CO

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DESCRIPTION OF THE OFFICE OF COMMUNICATIONS
SWITCHING REQUIREMENTS

We foresee the 6 automatic switch systems (Attachment 2) supporting approximately 14 manual tape relay centers equipped with automatic routing line segregators. There will be a mutual support relationship between these manual relays and the nearby automated relays; for example, in the Far East we foresee a relationship whereby the manual relay centers at

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[REDACTED] will assume the traffic load in the event of a failure of the automatic switching equipment at [REDACTED]

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as a whole. This directly supports and is related to the Office of Communications Emergency Base Station Plan. A chart depicting a world-wide relationship is shown in Attachment 3. The degree of automation at these manual tape relays, which we anticipate in the next 4 or 5 years, would be to automate the tape factory operation with an automated routing line segregator unit. Although we'll be looking for better solutions to our retrieval and pull back tape relay problems we see no economical method to improve our efficiency in these areas at this time.

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EQUIPMENT BOARD MINUTES

Meeting Number 3-65 of the Equipment Board was held on 5 April 1965 in the OC Conference Room, 2D03, Headquarters Building. Those present were:



I. OLD BUSINESS

None

II. NEW BUSINESS

Agenda Item No. 1: MAX-1 Equipment Installations

1 Introduction

a. This meeting was called to discuss the scope and timing of the actions required following activation of MAX-1 [REDACTED] OC-T presented recommendations with regard to future switch requirements both automatic and semi-automatic.

b. Prior to the meeting OC-T distributed a paper providing background information for Board members on CIA Automated switching plans, as these plans are envisioned by OC-T. A copy of this paper is attached to these minutes.

2. Discussion

a. [REDACTED] opened the discussion by pointing out that at the last Equipment Board meeting on MAX equipment, two questions existed which could not be fully answered until one unit was placed in operation. One of these questions was whether a MAX type switch would operate satisfactorily in a high RF environment. It was agreed that operation thus far [REDACTED] Field proves that it can. Of the total spillout occurring [REDACTED] less than 5 percent--and it may be as little as 2 percent--is attributable to circuit induced

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25X1A errors The second question concerned the need for duality at a
25X1A given location. All our experience thus far confirms the need
for such duality. Without it there would be unacceptable outages.
In the general discussion which followed [REDACTED] remarks,
it was agreed that the MAX-1 installation [REDACTED] was performing
as well or better than had originally been expected.

25X1A b Next discussed was the subject of whether procurement
25X1A of additional switches should be through competitive bids or sole
25X1A sourced. [REDACTED] made a very strong argument for
25X1A sole source procurement on the basis that training and maintenance
25X1A requirements dictate standardized equipment. [REDACTED] pointed
25X1A out that a Congressional study showed that computer equipment is,
25X1A on average, obsolete after 4 1/2 years, and he wondered whether [REDACTED]
25X1A would not be changing their equipment as time progressed, making it
impossible for us to standardize on one particular unit. [REDACTED]
stated that the rapid obsolescence of computer equipment over the
recent past was largely due to the rapidly changing technology of
the period resulting from changes from tubes to transistors, changes
in memory systems, etc., but that he believed there would be
considerably more stability in the future and that most of the big
changes are behind us. In any case, he was confident that [REDACTED]
would continue in the future as they had in the past to back up
any equipment which they sell with spare parts throughout its
useful life. They had demonstrated their ability and willingness
to do this in the case of the 231-D, 51-J, as well as with other
equipment. Additionally, it should be our policy that when important
changes occur which makes up-dating of a portion of a system desirable,
this up-dating be carried through by retro-fitting previous units
with the result that when we have installed our last switch the
entire system will be modern. There was general agreement that
this was the direction in which we should proceed, and that this
general approach should apply to software as well as hardware.

25X1A c. [REDACTED] used a diagram to show locations proposed
25X1A by OC-T for future switches: [REDACTED]
25X1A [REDACTED] Langley. A Cable Secretariat switch for automatic distri-
bution will also be required, but programming and budgeting for this
switch will be the responsibility of the Cable Secretariat.

25X1A d The [REDACTED] switch is proposed as a terminal for South
American circuits plus some of the circuits which now terminate in
the Langley Signal Center. The latter requirement results from the
fact that the Signal Center switch is not planned to have the large
capacity needed to handle all the Headquarters area circuits.
Additionally, this switch will also serve as a back-up to the key
Langley Signal Center switch in the event of relocation, damage to

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the Langley Signal Center, etc. [REDACTED] stated that if a switch is located [REDACTED] he believed control (terminals) should be in the Langley Signal Center. This problem was discussed and it was agreed that there appeared to be no technical problems to prevent this.

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e. The problems of checking out software were next discussed. In obtaining a new or revised program, it is necessary for the contractor to have a switch to check it out. One organization obtaining switches has met this problem by allowing the contractor to retain the first switch for software checking purposes, placing succeeding switches in operation as they are produced while continuing to check out software on the first unit; then, when all programs have been checked, the original switch is made available for installation. We could do essentially the same thing, although this involves substantial cost, particularly because our switch must be kept in a classified area [REDACTED] or we could install the switch in the Headquarters area and use it for software checkout purposes. However, it would have to be understood that the switch could not be used for regular switching purposes while being used for software checkout because it would not be practicable to take it out of service for the length of time needed to check out a program.

f. In response to a question from the Chairman as to whether Board members believed we now had enough experience to know whether or not we wanted to go ahead with the switch program, the general view was that thus far switches were performing as well, or possibly a little better than anticipated, but that we did not yet have enough experience to determine just how far we should go; perhaps in six months we would know this. This led to a discussion of the basic prerequisites which should exist before a given installation was programmed for a switch. It was agreed that the pertinent factors were: a) political stability of the location; because of the cost of a switch and its installation, we would not want to put a switch into a location which did not have good tenability; b) ideally, the location should be at an end of a long-haul transoceanic trunk, this because of the backlogs which develop on these circuits during the two daily propagation transition times, and c) the location should have enough circuits to justify a switch.

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g. The OC-T proposed locations for future switches were reviewed in this light, particularly with reference to where the next switch should be located. By way of introduction to this subject, the Chairman stated that OC was taking the conservative approach to procuring switches; one switch has been installed [REDACTED] no funds are programmed for a switch in FY-66; one switch will tentatively

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25X1A be programmed for FY-67. The basic question thus is where to
25X1A place the next switch, providing it is finally determined to
25X1A obtain one in FY-67. The three sites in contention were
25X1A considered to be [redacted] and the Headquarters area
25X1A (Langley [redacted] [redacted] advanced the argument
25X1A that several switches should be planned for because, for
25X1A example, in the case [redacted] a decision on whether or not one
25X1A is to be located there will affect the plans now being prepared
25X1A for that base station in respect to power requirements, air
25X1A conditioning and space. It was the consensus that we should
25X1A plan for inclusion of a switch [redacted] during the construction
25X1A phase even though installation may be deferred for a few years
25X1A or indefinitely. With regard to [redacted] the number
25X1A of circuits to terminate in these locations (an estimated [redacted]
25X1A plus [redacted] contingency for [redacted] and [redacted] contingency [redacted]
25X1A [redacted] was reviewed and compared with the Headquarters area
25X1A requirement. After discussion it was agreed that the Headquarters
25X1A area should be the location of the next switch, not only because
25X1A it probably is the area of maximum need, but because it is a
25X1A location in which the switch can be used for software checkout.
25X1A With regard to the number of circuits terminating in the Washington
25X1A area, OC-T estimates there will be about [redacted] stated that
25X1A by no means all of these should terminate in a switch; the low
25X1A volume circuits would continue to be handled essentially as they
25X1A are now. He continued that he believed the Headquarters area
25X1A switch should handle about [redacted] large circuits out of all those
25X1A coming into both Langley [redacted] In discussion it was
25X1A recognized that this was a subject which could not be entirely
25X1A pinned down at this time; it will require more study, particularly
25X1A with regard to microwave circuitry and capabilities.

25X1A h. With regard to the [redacted] manual tape relay centers which
25X1A OC-T proposes be equipped with automatic routing line segregator
25X1A equipment (see attachment), [redacted] stated that no equipment
25X1A had as yet been located which is satisfactory to our needs; Bendix
25X1A has a promising unit in the breadboard stage and several other
25X1A firms are working on the problem. Cost of these units is expected
25X1A to be in the vicinity of \$50,000.00, including reperfs. Using a
25X1A chart, [redacted] explained the relationship between these non-
25X1A automated installations and the proposed automated switch terminals,
25X1A including how they fit into the OC Emergency Base Station Plan and
25X1A provide for alternate routing in the event an automated switch
25X1A terminal is unable to operate. Following discussion on this plan,
25X1A it was agreed that OC-E would continue to search for suitable
25X1A equipment to perform the automatic routing line segregator function.

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III. Board Recommendations:

25X1A a. For programming purposes, we proceed with planning to procure an automated switch for the Washington area. Among other things, this will involve a study to determine whether the first area switch should be located [REDACTED] at the Langley Signal Center. Planning should also anticipate the possibility that sufficient funds can be made available in FY-66 and FY-67 to obtain both switches in this time frame.

b. That OC-E continue its search for equipment to meet the automatic routing line segregator requirement.

c. OC-T five year program FY-66-70 include funds in each year for automatic switching equipment (MAX type and/or automatic tape factories).

d. A firm decision on proceeding with an automatic switching program for certain of our overseas bases be deferred until we have had further experience with MAX-1.

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Approval

* D/CO COMMENT: I think that a study called for by recommendation a should be expedited and that if it appears feasible to procure the equipment earlier than FY-67, we make an effort to obtain funds from the reserve. I am convinced that automatic switching equipment in the Washington Area is required just as soon as it is possible to obtain it.

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